S. Tanaskovic*
Vascular Surgery Clinic, "Dedinje" Cardiovascular Institute, Belgrade, Serbia

N. Ilijevski
Vascular Surgery Clinic, "Dedinje" Cardiovascular Institute, Belgrade, Serbia
School of Medicine, Belgrade University, Belgrade, Serbia

*Corresponding author.
Email-address: drslobex@yahoo.com (S. Tanaskovic)

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Response to 'Re. Doppler Ultrasound Examination of Multiple Sclerosis Patients and Control Participants: Inter-observer Agreement and Association with Disease'

Thank you for your great interest in our study. Indeed, our study confirms the poor inter-observer agreement in the examination of the internal jugular vein with ultrasound (US). An US examination is highly operator-dependent, and because of the wide range of anatomical and physiological variables caused by low venous pressure and vessel configuration, US is even more vulnerable in venous examinations than in other regions. We think this is the key point of the entire study: it is extremely difficult, if not impossible, to get similar results from repeated US measurements of the same target vein, a task that was easy to achieve when we measured arteries. We are convinced that this is not the result of a lack of skill by the examiner, but the fluctuating existence of the vein. Baracchini et al. reported comprehensively on the limitations of CCSVI criteria based on an US examination.[1] Venography has been reported as the gold standard for CCSVI. However, a recent study by Simka et al. reports that venography has also shown controversial results.[2]

After our study, we question the term 'stenosis' in internal jugular veins with a CSA <0.3 cm^2. Indeed, 45% of the control veins also fulfilled this criterion (and 65% and 70% of the two multiple sclerosis [MS] groups). The observed association with MS does not represent a meaningful confirmation of CCSVI as we did not measure true stenosis but an arbitrarily chosen threshold value (0.3 cm^2).[3] We did observe a difference between MS cases and control participants in the proportion of subjects with a CSA <0.3 cm^2, although our results differ substantially from those of the original study[3] (37% vs. 0%). The reasons for and meaning of the difference between the MS cases and control participants remain to be resolved, but the clinical significance of CSA <0.3 cm^2 is highly debatable.

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S. Laukontaus*, P. Tienari, M. Lepäntalo, M. Venermo
Helsinki University Central Hospital, Finland

*Corresponding author.
Email-address: sani.laukontaus@hus.fi (S. Laukontaus)

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